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Localized Learning and Social Capital: The Geography Effect in Technological and Institutional Dynamics

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Abstract:
Providing a concise working definition of social capital, this conceptual paper analyses why social capital is important for learning and economic development, why it has a regional dimension, and how it is created. It argues that with the rise of the Knowledge Economy, social capital is becoming valuable because it organizes markets, lowering business firms' costs of coordinating and allowing them to flexibly connect and reconnect. Thus, it serves as a social framework for localized learning in both breadth and depth. The paper suggests that a range of social phenomena such as altruism, trust, participation, and inclusion, are created when a matrix of various social relations is combined with particular normative and cognitive social institutions that facilitate cooperation and reciprocity. Such a matrix of social relations, plus facilitating institutions, is what the paper defines as "social capital". The paper further suggests that social capital is formed at the regional (rather than national or international) level, because it is at this level we find the densest matrices of social relations. The paper also offers a discussion of how regional policies may be suited for promoting social capital.

Key words: Social capital, knowledge economy, regional dimension

JEL Codes: D83, Z13

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1. Introduction

This conceptual paper discusses the importance of *social capital* (e.g. Bourdieu, 1986; Coleman 1988, Burt 1992, Putnam 1993, Fukuyama 1995, Woolcock 1998; Baron et al, 2001; Lin, 2001 Lin et al, 2001, Field, 2003) for *localized learning* (i.e., processes of technological and institutional development taking place within confined regional spaces, such as clusters, as described by e.g. Malmberg and Maskell (1999); Lorenzen (2001); and Maskell (2001)).

Increasingly, scholars argue that persistent economic development differences among regions may be understood by focusing upon social capital. In a resource-based view of regional economic development (see e.g. Foss, 1996; Maskell et al, 1998; Lorenzen, 2002), unique resource endowments of regions cause persistent differences of firm performances, exports, and economic growth. Obviously, regions' different locations, natural resource endowments, access to public or private venture capital, public educational programs or knowledge transfers from universities often hugely influence their growth potential. However, taking all these resources into account is not sufficient to explain e.g. the persistent growth differences between Italian regions or Indian states, the emergence of successful clusters in hitherto predominantly rural areas around the World, or the success of some regions in restructuring their old industrial areas under the same conditions where others fail miserably.[1] Hence, some scholars argue that social capital is the "residue" that may explain these regional performance differences, after we have taken other resource endowments into account.[2] In particular, social capital may facilitate *learning* at the regional level, and hence lead to product innovations and over-average export potential of local firms (Maskell et al., 1998; Lorenzen, 2002).

The empirical evidence on the importance of social capital is still sparse (but see Borgatti, 1986; Lin et al., 2001; Putnam, 2001). Hence, what follows is a conceptual exercise, through which I shall investigate and further develop the social capital thesis, with particular focus upon technological and institutional dynamics.

With the rise of the Knowledge Economy (OECD, 1996; Lundvall and Maskell, 2000), traditional economic efficiencies of *production* (revolving around cost-cutting and stability) are giving way to efficiencies of *learning*, and that means a shift in economic organization: The abundance of flexible and temporary market-based forms of organization (i.e., shifting inter-firm relations and projects) is growing relative to integrated and stable forms (i.e., large firms and long-term networks). The paper argues that these developments render social capital increasingly valuable, because social capital organizes markets, serving as a social framework allowing business firms to flexibly connect and reconnect and learn in both breadth and depth.

The paper does not attempt at treating all aspects of the increasingly popular — and blurry — notion of social capital. Rather, providing a concise working

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[1] In development theory, scholars increasingly look for involvement, social ties, and so on, as explanations to economic development differences, rather than trade regimes or government programs (Hirschman, 1986, Miller 1997). Another case in point is the rise of the Scandinavian welfare societies from being a part of the underdeveloped periphery of Europe to reach a GDP per capita among the highest in the world, while other European countries with a much stronger resource endowment lagged behind (Lundvall and Maskell, 2000).

[2] Hall and Jones (1997) refer to "social infrastructures", and Abramovitz (1986) use the expression "social capability". In economics, the idea of a social or institutional "residue" is not new either (see e.g. Perroux, 1988).

definition of social capital, the paper analyses why it is important for learning, regional competitiveness, and economic development, why it has a regional dimension, and how it is created. The paper is structured as follows. Section 2 provides a workable definition of social capital. With other scholars, I suggest that a range of regional social phenomena arising from cooperative and reciprocal behavior, such as altruism, trust, participation, and inclusion, are preconditioned by the existence of *social relations* among agents (firms and persons) based upon particular *social institutions* (shared conventions and codebooks). A dense amalgamation of different types of social relations and conventions cum codebooks is what the paper defines as "social capital". Hence, contrary to some other scholars, I view trust and other benevolent social phenomena as outcomes of social capital, not parts of it. Furthermore, I emphasize the collective, non-proprietary dimension of social capital (as opposed to scholars who focus upon single agents' or clubs' appropriation of the benefits of their social relations). I also emphasize the diversity, openness, and social change social capital allows for (contrary to scholars who view social capital as a stable phenomenon serving mainly to preserve established social traditions, and who sometimes refer to "negative" social capital).

Section 3 takes as a — admittedly stylized — starting point that competitiveness in the Knowledge Economy hinges upon *technological learning*. It proceeds to analyze the impact of social capital upon such learning. I argue that social capital facilitates interactive learning among business firms, because it lowers their incentive-related as well as cognitive *coordination costs*. Social capital is arguably an economically efficient frame for technological learning, because it offers a particularly diverse and flexible combination of knowledge resources.

Section 4 is devoted to a discussion of why stocks of social capital are often formed at the regional (rather than national or international) level. I point out that it is at the regional level we find the densest configurations of tight and loose, *as well as* business-related and civic social relations — in other words, a regional *matrix* of different types of social relations, offering a wide and flexible frame for social interaction and learning processes. Hence, *institutional learning*, bringing about (and adapting) social conventions and codebooks to further broaden the matrix of relations, is a predominantly regional phenomenon.

While a regional setting is necessary for social capital formation, it is clearly not sufficient: While some regions build large stocks of social capital and consequently experience growth in the Knowledge Economy, others lag behind. Section 5 offers a discussion of why particular regions become richer in social capital than others. The section distinguishes between organic processes of social capital *accumulation*, and policy processes of targeted *investments* in social capital.

The paper is rounded off by a conclusion and brief discussion of how our discussion of social capital has added to a conceptualization of localized learning.

2. A Definition of Social Capital

Social capital defined

In recent literature, social capital has been assumed to mean a lot of different things, and a certain amount of terminological soup persists (for a discussion, see Woolcock, 1998). For example, altruism, trust, participation to different social activities (e.g. voluntary social work, leisure, or education), social inclusion, and low crime levels, have all been dubbed "social capital". Even if most of these

social traits are obviously benevolent and important for economic development, and some of them are relatively easy to measure empirically (Putnam, 2001), they seem to be picked rather arbitrarily, and whether and how they are connected remains unclear.

For my purpose, I shall view trust and other benevolent social phenomena as *outcomes* of social capital, not parts of it and revert to the relatively narrow definition of social capital employed by e.g., Coleman (1988; 1990) and Woolcock (1998): Social capital consists of

> *Social relations among agents, resting upon social institutions that allow for cooperation and communication*.[3]

By "social relations", I mean connections among two or more agents — in both business life and the civic sphere — that *affect behavior* (Granovetter, 1973). Relations affecting behavior need not be reciprocal, (i.e., they may affect different agents in different ways — one agent may be forced to act due to the power distribution in a relation, while another agent may be inspired, but not forced, to act because of the information he receives through a relation). Relations need not to be direct (intransitive) to be effective, either: Especially in the civic sphere, indirect relations — relations mediated through third parts (e.g. friends' friends) — may be extremely influential due to the information they carry. I shall discuss the nature of social relations in more detail in sections 3 and 4.

By "agents", I mean persons (individuals), but these often represent the organizations (firms) in which they are employed. Hence, social capital often benefits firms, and the effects upon firms are the focus of discussion.

Social relations need not be particularly socially beneficial. As shall be evident in the discussion in section 5, some types of social relations may lead to collusion and economic stagnation. It is only in combination with particular social institutions that social relations become valuable and can be seen as "capital". By "social institutions", I refer to collective traits such as law, social conventions, languages, codes, or points of reference, that through regulation or normative or cognitive alignment infuse social relations with cooperation and communication.[4] Even if difficult to measure empirically (Abramovitz, 1986; Borgatti et al., 1998; Rotberg, 2001), such social relations with cooperation and communication arguably lead to social traits mentioned above, such as trust, participation, low crime, and so on.

Social capital is non-proprietary

Some scholars, keen on a methodological individualist stance, view social capital as something that can be appropriated by single persons (Burt, 1992; Glaeser, 2001) or single firms (Gulati, 1999; Lin, 2001). It is true that single persons or organizations may benefit from investing in their relations to others — just as they may benefit from investing in other types of capital, such as their employees' skills (Becker, 1964; Schuller, 2001). But focusing only upon single agents' investments in social relations misses a key dimension of social capital. Social capital is a powerful concept because it *supplements* methodologically

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[3] This formulation is mine. Coleman (1988) for example, does not use the term "institutions" like here, and in Woolcock (1998), the somewhat catchy phrase "networks and norms" is used to denote what I refer to as "relations and institutions". In the following sections, it will become clear why I choose to use this terminology. It should be noted that defining social capital as social relations and institutions is at odds with Bordieu's definition. In Bordieu (1986), he views social capital as *resources that result from* social relations, not the social relations themselves.

[4] The notion of "institution" here is hence not used in a Williamsonian (1985) way, i.e. as a contractual arrangement, but as a broader societal environment (North and Thomas, 1973).

individualist approaches to economic coordination, such as transaction cost economics (Williamson, 1985; 2000). By pointing towards social capital as an institution, a *collective, non-proprietary asset* of a community of economic agents, it helps to explain why individual rational agents make quite *different* choices in different regional settings, and consequently, how economic organization may differ between regions — an explanatory feat that e.g. transaction cost economics is not able to pull off on its own.[5] This means that the social capital approach, by conceptualizing social capital as an asset with emergent properties is powerful in explaining economic development differences. Exactly because social capital is collective and formed within communities through processes of interaction and institutional learning (see section 4) — , it is an unique collective asset which is technically impossible to trade or imitate. Such collective assets are those that, if valuable, may form the basis for sustained competitive advantage for a community or region.

In the following, I shall discuss in more detail what is meant with social relations, social institutions, cooperation and communication, as well as formation of social capital. I begin by sketching out why social capital is economically valuable.

3. The Value of Social Capital

It is argued to the point of exhaustion by scholars and policymakers that we are entering the Knowledge Economy (e.g., OECD, 1996, Lundvall and Maskell, 2000) — an era where competitiveness of firms, nations, and regions is not only based upon their efficiencies of producing cheaply and just-in-time, but also upon continuous, flexible and cheap creation of knowledge, fostering product and process innovation (what we could call *technological learning*). Large-scale manufacturing is being automated and/or outsourced from former industrial regions to peripheral regions with low factor costs, small-scale manufacturing becomes innovation-based, and new both consumer and supplier industries, revolving around product variety and economies of speed, spring up.

In this era, increasing globalization of demand and production paired with a range of changes in facilitating technologies and international institutions bring along a host of changes in the organization of economic activity — particularly in the OECD countries, where firms and industries need to change in order to cope with new forms of competition. As competitiveness hinges upon efficiencies of learning more than the efficiencies of production, firms implement new production methods, use different divisions of labor, changing their boundaries accordingly, and depend upon other types of institutions in order to coordinate their economic activities. It is in this setting that we can best understand the value of social capital. Below, I shall outline how particular social relations and social institutions, in turn, are valuable in the Knowledge Economy.

The value of social relations

In economics, the innovation literature is replete with accounts of the interactive nature of technological learning. 25 years ago, von Hippel (1988) illustrated how firms use customers and suppliers when innovating, and since, a whole literature has emerged, treating user-producer innovation, interactive learning, inter-organizational innovation, and so on (for overviews and discussions, see e.g.

[5] Williamson (1996) tends to explain social phenomena, such as collaboration and trust, as an outcome only of single rational choices of agents, not influenced by social institutions.

Lundvall, 1992; Dyer and Singh, 1999; Ingram, 2002). The core argument is, of course, that collaborations — relations — among firms are drivers of technological learning. Firms may receive not only incentives for innovating along the vertical dimension of value chains, i.e., from customers and suppliers, but also valuable information feeding into the innovation process. Furthermore, the innovation literature points out that firms may collaborate horizontally in alliances with other firms; or monitor and study their competitors to innovate; and labor flows among firms can also be seen as important sources of knowledge transfer.

Because many World markets are fluctuating and customer demands are increasingly ambiguous (or demanding in terms of customization), what is needed is not just stable, incremental learning or exploitation, but both exploitation and exploration (March, 1991). Such flexible learning necessitates firms to connect to a range of diverse knowledge resources and constantly shift collaborations in order to learn in both breadth and depth (Lorenzen and Maskell, 2004). Consequently, we see how the nature of business relations shifts in an increasing number of industries. Whereas earlier efficiencies of production were often accomplished through integration or long-term networks, such as stable value chains or horizontal alliances, the efficiencies of learning in the Knowledge Economy render of increasing economic value a range of different flexible and temporary relations among firms — spanning from the quintessential flexible specialization described by Piore and Sabel (1984) to project networks or temporary horizontal alliances (see e.g. Hobday 1998; Ekstedt *et al.* 1999; Grabher, 2002; Maskell and Lorenzen 2004). For example, integrated pharmaceutical firms have given way to flexible outsourcing arrangements among specialized biotech firms, drug developers and drug producers, and integrated Hollywood studios have been replaced by complex project networks of small-scale film and media production companies.

Whereas relations among firms are particularly central for innovation in low-tech industries, studies of innovation systems (some of which are represented in other papers of this book) point to the importance of a range of other relations. For example, relations among firms and universities and other public and semi-public knowledge centers may be important channels of information and knowledge. Particularly for firms in medium- or high-tech industries, university training and research is a core input to learning. A range of studies also addresses the learning effects of the personal relations among managers and employees from different firms: Their collegial exchange of gossip and advise (often based on their belonging to the same professions, clubs or associations) may in fact constitute an informal trade of information (von Hippel, 1987), or facilitate mutual monitoring among firms at the same stage in the value chain (Maskell and Lorenzen, 2004). Finally, sociological literature (e.g. Granovetter, 1973) notes that personal networks of families and friends that may connect a social entity (such as a firm) with the outside world through socialization, exchanges of advice, job and technical, and gossip, have important learning effects.

Figure 1 summarizes these different relations and their value for technological learning.

Figure 1. Social relations and technological learning effects

Social relation	**Learning effect**
Value chains	In-depth user-producer (vertical) learning
Alliances	Knowledge built jointly (horizontally)
Flexible specialization	In-breadth learning
Inter-firm project networks	Experimentation and customization
Industry-schools /universities relations	Research and education
Professions, clubs, associations	Informal know-how trade, socialization, gossip
Families, friendships	Advice, passing on of information

The value of social institutions

Relations among business firms only lead to technological learning if information is exchanged openly and well understood among the participating agents. However, while differences between specialized firms are what make their trade valuable, providing a potential for mutual learning, the same differences may also make such learning very costly. In an economic terminology, differences between firms in terms of interests and goals; cultures; organizational designs; as well as technologies, may raise *coordination* problems. There are two basic types of such problems (Lorenzen and Foss, 2003). First, differences in firms' goals and interests may cause *cooperation* problems. Rather than exchanging information openly, firms may lie and cheat, hence sacrificing technological learning for other, more short-sighted, goals. Second, even if firms are honest and seek to exchange information, differences in technologies, organizational designs, cultures, or expectations may cause *communication* problems.

It is exactly when it is most valuable, i.e. under market uncertainty when demand and technological changes makes it necessary for firms to specialize, outsource, and learn from each other, that coordination is potentially most difficult. In order to overcome these obstacles to learning, firms rely upon a range of *coordination mechanisms* of incentive alignment in order to solve cooperation problems, and cognitive alignment in order to facilitate communication.

However, traditional coordination mechanisms, such as long-term contracts (Holmström and Milgrom, 1994; Hart, 1995; and Williamson, 1985; 2000) or stable, partner-specific or dyadic trust (Lorenzen, 2002) that have proved efficient in a *production* logic because they lower costs and provide security and communication along value chains, are not particularly efficient in a *learning* logic, because they are designed to govern long-term relationships, rather than the more flexible and temporary relations needed in the Knowledge Economy. In fact, if firms rely on contracts, while at the same time need to connect to a range of diverse knowledge resources in order to learn flexibly, they may be faced with huge dynamic transaction costs of constantly designing new contracts for shifting partners (Langlois and Robertson, 1995).

With the rise of the Knowledge Economy, other types of coordination mechanisms are valuable. What is needed for propagating technological learning are mechanisms that, rather that governing closed partnerships and stable networks (clubs), in stead organize the market (Maskell and Lorenzen, 2004) and solve cooperation and communication problems for a large number of business firms that can flexibly connect and reconnect. In other words, whereas business firms may solve bilaterally many of their potential coordination problems in their long-

term relations, their temporary and flexible relations are dependent upon a social environment — social *institutions* (North & Thomas, 1973).[6]

There is a range of social (collective) institutions that may serve to lower cooperation problems through aligning incentives, spanning from regulative to normative (Scott, 1995). National or international background law (such as trade legislation or patent law) is designed to regulate incentives in business relations, but such laws are too generic and have too high monitoring and sanctioning costs to stand alone in order to coordinate flexible and development-oriented relations. This is why, in many contexts, informal social contracts in the guise of social conventions (Granovetter, 1982; Taylor, 1982; Elster, 1989) serve to further coordinate social interaction, including business transactions, through social monitoring, gossip, and reputation effects.[7] Such normative social institutions are demonstrated to efficiently allow for flexible business relations in different contexts (Macaulay, 1963; Lorenzen and Foss, 2003).

There is also a range of cognitive social institutions that may lower coordination problems related to communication (Scott, 1991). In order to understand and learn from each other, business firms have to rely on some shared social codebooks that allow them to code and interpret information in the same way. Such social codebooks consist of shared languages (Lorenzen, 1998; Cowan et al., 2000; Lissoni, 2001) and common points of reference or focal points (Schelling, 1960) in the guise of shared experiences or myths. Social codebooks not only serve to increase firms' abilities to share information, but can also align their expectations about each other. One outcome of such cognitive coordination may be social trust, where a whole collective group of agents take mutual cooperation for granted, even if they have no direct experience with each other (Lorenzen, 2002; Lorenzen and Foss, 2003). Social trust is brought about in a cognitive process of automatically ascribing trust to a particular category of agents on the basis of their social characteristics, for example, employment, training, religion, or simply membership of the same social class or group (Fukuyama, 1995).[8]

As can be seen, social institutions (such as social conventions and social codebooks) are more conductive for learning than dyadic coordination mechanisms (such as contracts and partner-specific trust), simply because they allow for more — and more flexible — relations. But some social institutions may also be more conductive for learning than other. Ceteris paribus, *cognitive* social institutions are likely to be better suited for learning than normative institutions: When firms align expectations and understand each other well, but are not necessarily constrained by narrow schemes for correct behavior which social norms would impose upon them, they are open to experiment freely with each other, in an intricate web of information-intensive and flexible relations. For example, social trust, based upon shared myths or expectations, is collective and inclusive to a whole group of people and hence more efficient for flexible relations than dyadic trust (which would lock agents into long-lasting relations). Social trust is also more efficient for learning than tightly-knit social norms, that would limit the types of relations and actions firms could undertake with each other.

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[6] While referring to social institutions as an "environment", North and Thomas (1973) refer to partner-specific institutions such as contracts or dyadic trust as an "arrangement".
[7] Elster (1989) uses the notion "norms" instead of "conventions".
[8] Hence, I view social trust as an *outcome* of social capital (social ties and institutions), not a part of it, as many other authors would have it.

4. The Regional Dimension of Social Capital

I have now suggested that social capital consists of social relations in combination with the social institutions that facilitate them. I have also made the point that flexible relations and cognitive social institutions are particularly valuable as social capital. Why, then, is social capital a regional phenomenon? In order to answer that question, let us explore the nature of social relations and institutions further.

The Regional Dimension of Social Relations

A key reason that social capital is often regional is that many social relations, and, in particular, *combinations of different types of social relations*, are place-bound, because they are interdependent. For my purpose, I discuss two dimensions — and hence, four main types — of social relations.

Figure 2. Types of Social Relations

REALM / **NATURE**	**Business**	**Civic**
Tightly coupled	**Networks:** Value chains Alliances	**Strong ties:** Families, Friendships Clubs Universities and schools
Loosely coupled	**Temporary Organizations:** Flexible specialization Projects	**Weak ties:** Families' and Friends' friends Professions Associations

The first dimension of social relations (see Figure 2 above) is their *realm*: The business realm vs. the civic realm.[9] As *business relations* are the relations in which technological learning and trade takes place, they are also the type of relations that, ultimately, produce the most easily recognizable economic results. However, a much more abundant type of relations is, of course, relations that are established for many other reasons than profit making: *Civic relations* among people in everyday life, knit through kinship; during school days (or reunions); through leisure and culture activities; in sports or in volunteer work, and so on.

The second dimension in Figure 2 is constituted by the *nature* of social relations: Tightly coupled vs. loosely coupled. *Tightly coupled* (Weick, 1979) relations bond agents together in relatively homogenous social groups (Putnam, 2000). Tightly coupled relations are direct (with no intermediaries), encompassing frequent interactions among the agents involved, they are interdependent (participants are likely to influence each other when they act), and often firmly coordinated through regulation. In the business realm, this applies to long-term networks such as stable value chains and strategic alliances, and in the civic realm to strong ties (Granovetter, 1973): Families, long-term friendships, and long-standing participation to schools/university programs and some types of club memberships where people meet frequently and interact directly.

[9] As can be seen, I juxtapose "civic" with "business", not with "public".

Loosely coupled (Weick, 1979) relations are fluctuating (on-off) or short-lasting, and with relatively little — or only temporary — interdependence. They typically bridge different social groups that are internally strongly coupled (Putnam, 2000). In the business realm, an example of loosely coupled relations is temporary market organizations: Business relations that are established quickly and are not meant to last, as when a furniture maker buys a shipment of standard components or an advertising agency uses a freelance photographer. Loosely coupled civic relations are weak ties (Granovetter, 1973): Personal relations that are transitive, i.e. mediated through third parts, such as when people have common acquaintances (friends' friends) or because they share membership to an association based upon profession or hobby. Giving rise to casual, short-lasting and flexible interactions, weak ties are able to span the borders between the stable and closed relations constituted by strong ties, enriching agents with in-breadth information through gossip and opinions — and occasional favors — that strong ties do not provide them with (Granovetter, 1982).

Not all four types of social relations are equally sensitive to geographical distance, but they are all more abundant locally because those of them that are less dependent upon proximity spring from those that are more so. Consequently, we see the densest configurations of *all* these types of relations within relatively small geographic areas. Let me explain this in more detail.

At the heart of the argument is the fact that tightly coupled civic relations — i.e., strong ties — often are extremely sensitive to distance. This is because they may be formally constrained to the geographical catchment area of a club; they may radiate from a particular place (such as a school, university, or other organization that make people meet and talk); or may depend upon place-specific physical artifacts or facilities (a golf course; a lake; or a Rambla). As they are not business relations, and has no corporate sponsors sinking investments into maintaining them, strong ties hinge upon frequent face-to-face meetings among people in the civic sphere, and such meetings are very sensitive to distance costs (Granovetter, 1982; Becattini, 1990; Brusco, 1992; Lorenzen, 1998) — to the point where Sweeney (1991) refers to the "half-hour [transport time] contact potential".

While loosely coupled civic relations (weak ties) should not in themselves be sensitive to distance, the above-mentioned distance sensitivity of the tightly coupled (strong ties) rubs off upon some of them. Many weak ties are truly global. Consider personal relations among immigrants (such as the notorious Chinese), able to span all national borders. Or the members of some clubs, who will also gladly travel the World to participate in their events. Think of the global span and travel activities of Star Trekkies and golf fanatics, or the online communities of users of some exclusive software programs. But weak ties spring from strong ties. With more friends, there are also more friends' friends: Friendly or family bonds as well as tightly knit networks of university alumni or club members recommend people to each other, thus adding "halos" of weak ties to the strong ties. This means that strong ties' sensitivity to geographical distance can be traced in the patterns of weak ties: Even if *single* weak ties have the potential of spanning distance, *patterns* of them have a regional dimension. It should of course also be noted that with time, some weak ties develop into strong ties. This interdependence of civic relations adds to their regionalization.

The fact that civic relations are more abundant regionally has a notable effect upon business relations. First, let us consider loosely coupled such relations — i.e., temporary organizations. This type of relations is extremely dependent upon speed. The furniture maker in the example above is likely to use a local supplier in order to minimize delivery time, just as the advertising firm is likely to choose a local freelancer, because it is easier and quicker. This need for speed when setting up temporary organizations often brings firms to draw upon civic relations — strong or weak ties — in order to identify and contact new suppliers and other

partners. Because civic relations are often local, temporary business organizations often become local, too.

Second, the distance sensitivity of civic relations rubs off upon tightly coupled business relations — i.e., networks. This type of social relation is not sensitive to distance per se (Maskell and Lorenzen, 2004). Due to the direct and easily recognizable economic benefit of business relations, firms often sink asset-specific investments (Williamson 1985) into them, and are thus willing to pay transport costs and communication costs (which are diminishing anyway, due to new technologies) plus costs of travel and personnel exchanges, associated to maintaining them (Gertler, 1995; Andersen, 1999). The type of business relations that firms are bound to be most willing to invest in and pay distance costs for, are tightly coupled business relationships, such as strategic partnerships or long-term supplier relations. For example, General Motors thinks little of paying for airfare to maintain relations to Daewoo in Korea, and Italian and German suppliers of machine tools constantly travel the World to service their customers. The fact is that, after being established, tightly coupled business relations may (seemingly paradoxically) demand relative rare face-to-face meetings between agents, and, if the relation is tightly enough coupled, communication technology may substitute for much face-to-face contact. But nevertheless, many business networks are still regionalized. Some of them may be facilitated by universities or public agencies that operate with geographically defined catchment areas. But more notably, many business relations also spring from civic — and hence regional — relations among managers. This means that a great deal of them continue to be local, even with increasing global opportunities for trade and outsourcing. Adding to the regionalization of business networks is the fact that they sometimes spring from regionally abundant loosely coupled business relations that develop into long-term value chains or alliances.

Figure 3 sums up how, due to the interdependencies described above, many different social relations are regionalized.

Figure 3. Regionalization of social relations

REALM / **NATURE**	**Business**	**Civic**
Tightly coupled	Networks: Not sensitive to distance per se — but more abundant in regions because they **spring from civic relations and temporary organizations**	Strong ties: **Highly sensitive to distance** because they depend upon face-to-face contact
Loosely coupled	Temporary organizations: **Highly sensitive to distance** because they depend upon speed	Weak ties: Not sensitive to distance per se — but more abundant in regions because they **spring from strong ties**

Consider a matrix with a dense configuration of tightly coupled *as well as* loosely coupled, business-related *as well as* civic relations. Such a matrix of relations has, ceteris paribus, optimal learning effects, as it holds a wide variety of opportunities for forming still new types of flexible business relations with learning effects in breadth and in depth. And such a matrix is also very likely to be regional, because of the interdependencies of the relation types. Because many business relations depend upon civic relations, and many weak ties depend upon strong ties, the distance sensitivity of civic relations and strong ties rubs off upon business relations and weak ties, and they often also take on a distinct

regional dimension. We may speak of a *Regional Matrix of Social Relations*. Simply speaking, it is only in regions we find, within the same group of firms and people, interconnected relations pertaining to money, to work, to sport, and to a thousand other issues — some relations tight and long-lasting, others inspiring and loose.

The Regional Dimension of Institutions

A further reason that social capital is often confined to regions is that social institutions are also often regional. Quite simply, most regulative institutions, such as laws and rules applied by regional or city governments, universities, clubs, etc., have a defined geographical scope. For example, contract law, police codes rules, and membership rules apply to countries, counties and buildings, respectively. Cognitive institutions may also be place-bound, because they refer to local artifacts (e.g. buildings or sights). Without noticing it, we tend behave in particular ways when we dine in the club, or walk the Rambla. But a more profound reason that social institutions are regional is that they not only serve to facilitate social relations, they are also themselves *created* in social relations. Just as matrices of social relations facilitate technological learning, they also facilitate *institutional* learning. The results of such processes, in which groups of agents have interacted repeatedly, are normative and cognitive institutions. Social norms and codebooks have arisen as a result of regional problems, been tried out on regional problems, and adapted over time to facilitate regional coordination (Lorenzen and Foss, 2003). Even if Silicon Valley is very different from a North Italian textile district in terms of market context, both regions take advantage of coordination among local firms made possible by an intricate local system of regulative, normative, and cognitive institutions which has evolved through decades. Thus, institutional learning processes create communities, and because learning is most efficient in matrices of social relations that are densest within regions, communities become regional. For example, Elster (1989) analyzes how conventions arise and function in nation states and regional communities, and even if Holzner's (1972) original notion of communities coordinated by shared cognitive institutions — *epistemic* communities — was placeless and Haas (1989) analyzes such communities (in the guise of business professionals) in a global context, there is ample evidence that many cognitive institutions and epistemic communities revolved around them are regional (Pyke et al, 1992; Braczyk et all, 1998; Lazaric and Lorenz, 1998; Keeble and Wilkinson, 2000; Lorenzen and Foss, 2003; Amin and Cohendet, 2005).

Because many social institutions are learned in social relations, they evolve regionally, but they also only *function* regionally, by virtue of regional social relations. For example, social conventions and reputation effects are only efficient if there are ample weak ties to spread around gossip, and sufficient strong ties to facilitate social sanctions towards community members who breach social conventions. In a regional setting, there is not only a high number of both weak and strong ties, but also a finite number of agents, meaning better possibilities for identifying malefactors (Casson, 1997) and sanctioning them (Taylor, 1982). Whether a region's industry is low-tech and decentralized as in traditional industrial districts, or revolves around dominant firms or a university environment as in Cambridge, industry agents know each other and know *of* each other in the local industrial "village".

Hence, we find particularly rich varieties of both social relations and institutions only in regions. It is true that most countries show an abundance of both business and civic interaction among people at the national level. It is also true that globalization has brought about new types of business-oriented as well as civic global communities. However, no such global, or even national, community

can match a region's dense matrix of subcontracting, strategic alliances, informal know-how exchanges, plus interactions in employers' associations and in labor unions, in football clubs, at golf courses, or in the local pub or in the street — underpinned by unique local dialects and proverbs, local myths, and local gossip and reputation effects. The potential regional wealth of such social capital, and hence, the regional scope for learning, is unique.

5. The Dynamics of Social Capital

While the greatest scope for social capital and learning is regional, firms in some regions have a modest learning rate and fall behind in the Knowledge Economy. Clearly, while a regional setting is *necessary* for social capital formation, it is not *sufficient*. In the following, I shall discuss why not all regions are equally rich in social capital.

Some Regions Lack Social Capital

One reason for a region being relatively poor in social capital may be a poverty of social relations. For example, in the business realm, if dominant ("flagship") firms set up and top-down coordinate supplier networks, relations may be few and all of them tightly coupled. Many scale-intensive industries, like shipbuilding, have thus been characterized by non-reciprocal business relations and "star"-type value chains (all directed at one customer), but such patters also seem to arise in a range of newer and more knowledge-intensive industries that become coordinated by system houses or a few dominant distributors. In all these cases, the potential for interactive learning and experimentation across value chains is limited. Another reason for a lack of relations or a dominance of tightly coupled relations may simply be that an economic downturn has eradicated many business relations, as in the case of shipbuilding in many OECD regions. A lack of (venture) capital may also serve to hold down the number of business relations — clearly, in many cases social capital needs to be funded by financial capital (Lorenzen, 2001). In the civic realm, relations may be fewer and mostly benefiting a limited number of privileged insiders, if closed exclusive clubs dominate leisure and society life. Extreme examples are how the church and very closed and exclusive guilds have restricted and regimented social as well as economic activities in some societies. The result of such a dominance of a few tightly coupled social relations is collusion and little and slow learning (technological as well as institutional), serving to reproduce yesterday's technologies and old-fashioned traditions (Putnam, 2000; Florida, 2002).[10]

A region may also be rich in social relations, but poor in institutions. Some regions experience institutional learning through social relations, but rather than leading to socially beneficial institutions that promote openness and dynamism, hence facilitating further institutional learning in a cumulative causation (and, of course, also facilitating technological learning), institutional learning processes in these regions have amounted to misunderstandings and failed experiments with openness and collaboration. In game theoretic terminology, we could say that such regions where institutions both impede collaboration and social learning have reached a low institutional equilibrium, compared to an equilibrium with

[10] Whereas Putnam (2000) refer to the dominance of tightly coupled relations as "negative" social capital, I simply call it a *lack* of social capital.

socially beneficial and self-reinforcing social institutions (Lorenzen, 2002).[11] In the case of a low institutional equilibrium, conventions and expectations *prevent* cooperation and communication rather than facilitate it, and consequently, social relations are replete with distrust (which is different from and more costly than a lack of trust) and misunderstandings (which are more costly than a lack of communication). The dominance of the mafia and the general suspicion, hate, and economic and institutional sclerosis this has brought about in some South Italian regions is a case in point (Putnam, 1993).

How may we explain, then, that some regions do manage to build social capital? When is a positive causation between social relations and institutional learning set in motion? Let us look into the processes in which social capital comes about. I shall distinguish between organic processes of social capital *accumulation* and strategic (or, at least, politically influenced) processes of social capital *investments*.

Accumulation of Social Capital

As social capital is a complex collective system of social relations and institutions, it is created in organic, collective, and market-driven processes. Some scholars (e.g. Kristensen, 1992; Putnam, 1995) suggest that social capital accumulation is a process that may well take many decades, and be deeply rooted in earlier institutions in the regional institutional sediment that may well be a century old. While it is likely that institutions do have a history and often build upon or draw analogies from earlier institutions (Lorenzen and Foss, 2003), it may be too conservative to suggest that accumulation of social capital takes decades or centuries: New industrial spaces (Scott, 1998), from high-tech Silicon Valleys to North European low-tech clusters, are examples of regions that accumulated developed and accumulated social capital much quicker.

While social capital accumulation may thus happen in course of a decade or two, it may take external shocks (such as market developments or technological shifts) to set the process in motion. Experimenting with setting up both business and civic relations where few abounded earlier, and learning new institutions and practices, can be set off by a strong market pull or push (Lorenzen, 1998; OECD, 2001; Lorenzen and Foss, 2003). Hence (even this is likely to be of little comfort to policymakers), *chance* is bound to play an important role for social capital accumulation in many regions. But *key agents* may also spur the accumulation process. One example is “grand old men”, early-moving entrepreneurs, the firms of whom both create a regional demand for subsuppliers and spin off new firms by employing and training people who later embark upon own ventures. Another example is younger, but visionary entrepreneurs, who through large, symbolic ventures (such as big malls, museums, hotels, or the like) inspire others to conduct their own, independent, economic experiments. Through such early events, whether they be induced by chance or created by key regional agents, an initial stock of social capital can breed more social capital: It stimulates technological learning and economic success, which may build confidence in the very strategies of interacting, openness, and learning, hence inspiring still new local agents to building social relations and interacting.

Investments in Social Capital

While social capital is built through organic, bottom-up accumulation, public authorities and policymaking may also play a vital role in setting this process in

[11] Of course, “equilibrium” is meant as a metaphor for a particular type of development path (Arthur, 1990). No social system — and least of all a region — can be said to be at rest.

motion. It is a misconception to define the civic as “the non-public”, and to view social relations with public participation as a less important constituent of social capital. It is equally wrong that private agents always benefit social capital accumulation more than public agents. In fact, public policymaking is often important for social capital creation, because in some cases, it takes deliberate investments — which may only be undertaken or at least coordinated by public agents — to create social relations or set off institutional learning. Let us look at these types of investments in turn.

First, if social relations are few and reciprocity is modest (relations are predominantly tightly coupled, serve dominant agents’ interests, and information and goods do not flow freely but rather along directions set by dominant agents), public action may be necessary to “loosen” social relations. If public policymakers design rules for tenders in subcontracting, offer public tenders, or offer incentives for outsider entrepreneurs to build new business relations among themselves in order to challenge dominant firms and possibly short-circuit their relations, relations *within* the region can be de-monopolized. The public may also play an important role in boosting civic relations related to leisure, culture, and various unions and associations.

There is also an important role for the public to play in regions with very few relations to the *outside* world. While regions are typically open systems (Braczyk et al, 1998) in terms of flows of goods and fiscal capital, it is still an open question of how open they are (or should be) in terms of people and social capital flows. Some regions have built social relations among a limited group of agents with local origin and formed social institutions in predominantly closed local learning and investment processes, forming social capital bases that typically support traditional industries. For such regions that experience social as well as economic stability and maintain an acceptable rate of technological learning (expressed in exports) within traditional industries, the role of the public may well be to ensure stability and preserve the regional way of life. This type of social capital, and the policy challenge that comes with it, is characteristic of many traditional industrial districts, e.g. in North Italy. However, other regions demonstrate quite another logic. The high social capital stocks of Silicon Valley, Cambridge, and several Canadian regions, demonstrate that a region may have a surprising capacity for successfully integrating a high number of immigrants into a regional system of social relations and institutional learning. Hence, the role of policymakers who want to invest in and protect stocks of social capital is hardly to close a region to outside influences, competences, and people, but rather to invite and propagate them, without undermining social stability and institutional learning, destabilizing social relations and dismantling social institutions.

Second, apart from addressing the social relations issue, a further role for policymaking is to facilitate *institutional unlearning*. This is necessary if industrial history has resulted in a low institutional equilibrium of conventions of non-cooperation, as described above. In a game-theoretic perspective, a low institutional equilibrium can be viewed as one out of two possible outcomes of a reciprocal (or Tit-for-Tat) game (Axelrod, 1984). If an agent cheats and everybody else reciprocates by cheating, the game ends in a low equilibrium, but if just one agent puts himself at risk and cooperates, other agents reciprocate by cooperating, thus pushing the equilibrium “upwards”. In a region low on social capital, such *a first cooperative move* would, ideally, trigger an institutional learning process that will eventually redesign social conventions into cooperation (ultimately facilitating further institutional learning and social capital accumulation). The public can be that one agent that dares to cooperate first, in

order to set off a cumulative process of institutional learning.[12] One way for policymakers to set off a new regional "game" by playing "Cooperate" first can be public-private partnerships.

A relatively simple type of public investment in regional social capital is a large-scale construction project, as it may serve to create both a initial stock of social relations that spur further tie-building, plus act as artifact and symbol, creating a cognitive point of reference or even a myth that lays the foundation for later institution-building (OECD, 2001). The bridge built across the Swedish/Danish Øresund region, the Bluewater shopping centre built as a part of the regeneration of Kent Thames-side, or the museum and other cultural tourist attractions built in Bilbao are examples of attempts of investing in, among other things, regional social capital. It is noteworthy, however, that not any large-scale prestige project will serve as a social capital investment. Many such large-scale projects incur few firms, spin-offs or social relations, as well as limited legitimacy, common interest, or institution-building. Hence, they are likely to remain short-term investments in personal prestige and political careers rather than long-term investments in social capital.

The Role of the Nation State

A basic role of the nation state has always been to form a foundation for the development of social capital at all national geographical levels. As mentioned, financial capital sometimes spurs social capital, and national industry funds are often needed to support the formation of new business relations through start-ups. It also takes a nation to fight poverty, and belief in government has been and still is a crucial foundation, upon which social conventions of cooperation may rest (Lundvall and Maskell, 2000; Maskell, 2001).[13] This role of the state is not at all trivial, which huge persisting national differences in social capital stocks demonstrate.

But there may be a further role for the state related to the formation of social capital: To boost regional policymaking processes, inspiring and forcing regions with a low stock of social capital to invest in it. Even if the cumulative causation among social capital, economic growth, and public investments (meaning that even a modest initial investment in social capital may hugely influence a region's later economic performance) should make it very attractive for regional policymakers to invest in social capital, there are often barriers to such investments. Regional policymakers are often too locked in to particular policies (for instance, avoiding public-private partnerships) or lacking of strategic thinking, involvement or legitimacy, to efficiently invest in social capital. Put simply, there may be a need for institutional unlearning at the regional *policy* level.

Global economic or political shocks can sometimes be conductive for setting off a regional policy process of investing in social capital (OECD, 2001). However, there is also great scope for national policymaking here. For example, the Danish national planning law has for 50 years demanded all Danish regions (counties) to present plans for economic and social development. The latter years' increased planning pull has forced these regions to identifying their key economic strengths and weaknesses and presenting coherent strategies for tackling them through economic, spatial, as well as social policies. The pending regional reform (where

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[12] Of course, this strategy hinges upon other regional agents to play as Axelrod (1984) predicts: Reciprocally.

[13] Putnam's (1993) explanatory model can be criticized for its lack of state agency (Tarrow 1996; Rothstein and Stolle, 2003).

municipalities are merged and regions are changed) is bound to spur this regional planning and investment process further. Moreover, regions compete for national funds for selected technology areas through setting up regional consortia, and this has forced regional agents, private as public, to collaborate and form new types of social relations. Similar competitions among German *länder* (e.g., for Biotech funds) have brought about new regional collaborations and institutions (OECD, 2001).

6. Conclusion

This paper has aimed at contributing to our understanding of localized learning though looking at why what may be seen as society's most basic social infrastructure for learning — social capital — often is a regional phenomenon. The paper has argued that in the Knowledge Economy, social capital "finances" knowledge and skill assets, and the paper has uncovered how social capital — defined as a matrix of four types of social relations plus institutions facilitating cooperation and communication — is a necessary precondition for localized learning. The paper further suggested that social capital is a predominantly regional phenomenon, because it is at the regional level weak and strong; as well as civic and professional relations, come together to facilitate institutional learning processes. Only with a certain stock of social capital, allowing for cooperation and communication, may a region be able to socially "finance" technological learning. Social capital hence bears the potential for turning a region into, if you will, a "learning region" (Hudson, 1999; OECD, 2001; Rutten et al., 2006).

Even if formation of social capital is a bottom-up process of building social relations and institutional learning, it lends an important role for public policy at regional as well as national levels — through both finance, public investments, public-private partnerships, and symbolic and regulative efforts. There seems to be a division of labor of social capital policies: Whereas regional policymakers may need to invest in social capital formation through public projects, formation of public-private partnerships, influencing the nature of local relations, and opening the region to external influences, national policymakers may provide background law and finance opportunities while provoking or otherwise moving regional policymakers to engage in social capital investments.

Research into Learning Regions has so far — quite naturally — drawn heavily upon the research fields of, on one hand, Economic Geography (e.g., Romer, 1986; Krugman, 1991; Fujuta et al., 1999), and, on the other hand, Regional Studies (e.g., Brazyck et al, 1998; Cooke and Piccaluga, 2004). However, coming from a mainstream economic research tradition, Economic Geography has a tendency to treat innovation and knowledge spillovers as phenomena that can be studied independently from the firms and other agents who bring them about. Furthermore, even if Regional Studies is now booming with studies of (and arguments about) knowledge-creating business firms and organizations (such as universities), many such studies often pay little more than lip service to the social embeddedness of business relations in civic society.

Digging into the problem of social capital clearly supplements these two research streams. Hence, the social capital angle is an important constituent of an emerging theory of localized learning, as scrutinizing social capital's constituents — social relations and social institutions — reveals why so many learning processes are inherently regional. Furthermore, it uncovers the processes that are at the base of technological and institutional learning, hence facilitating a type

of policy discussion that is so far relatively rare within the discourse on localized learning — or, for that matter, Economic Geography and Regional Studies.

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